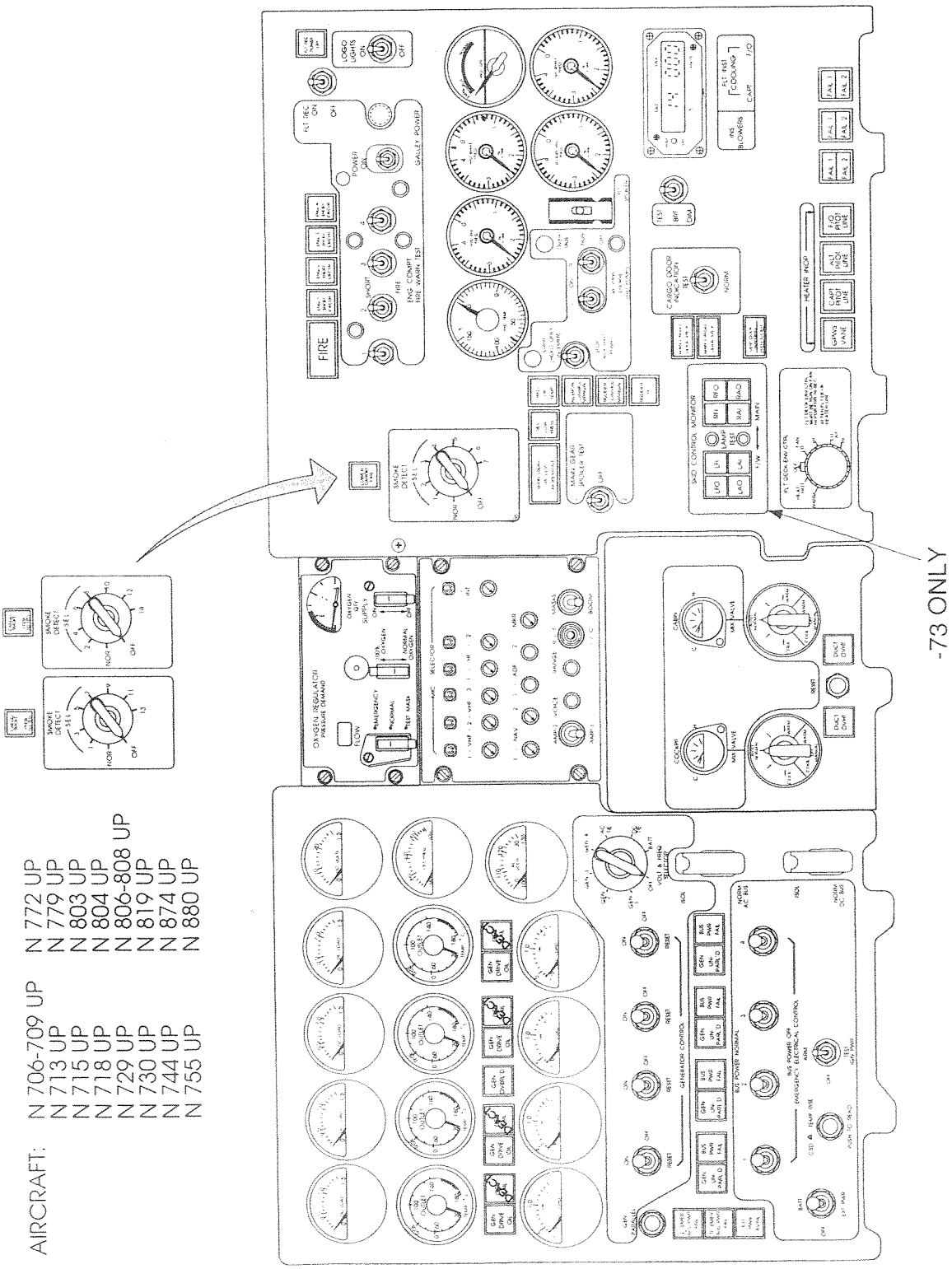
Attachment 7

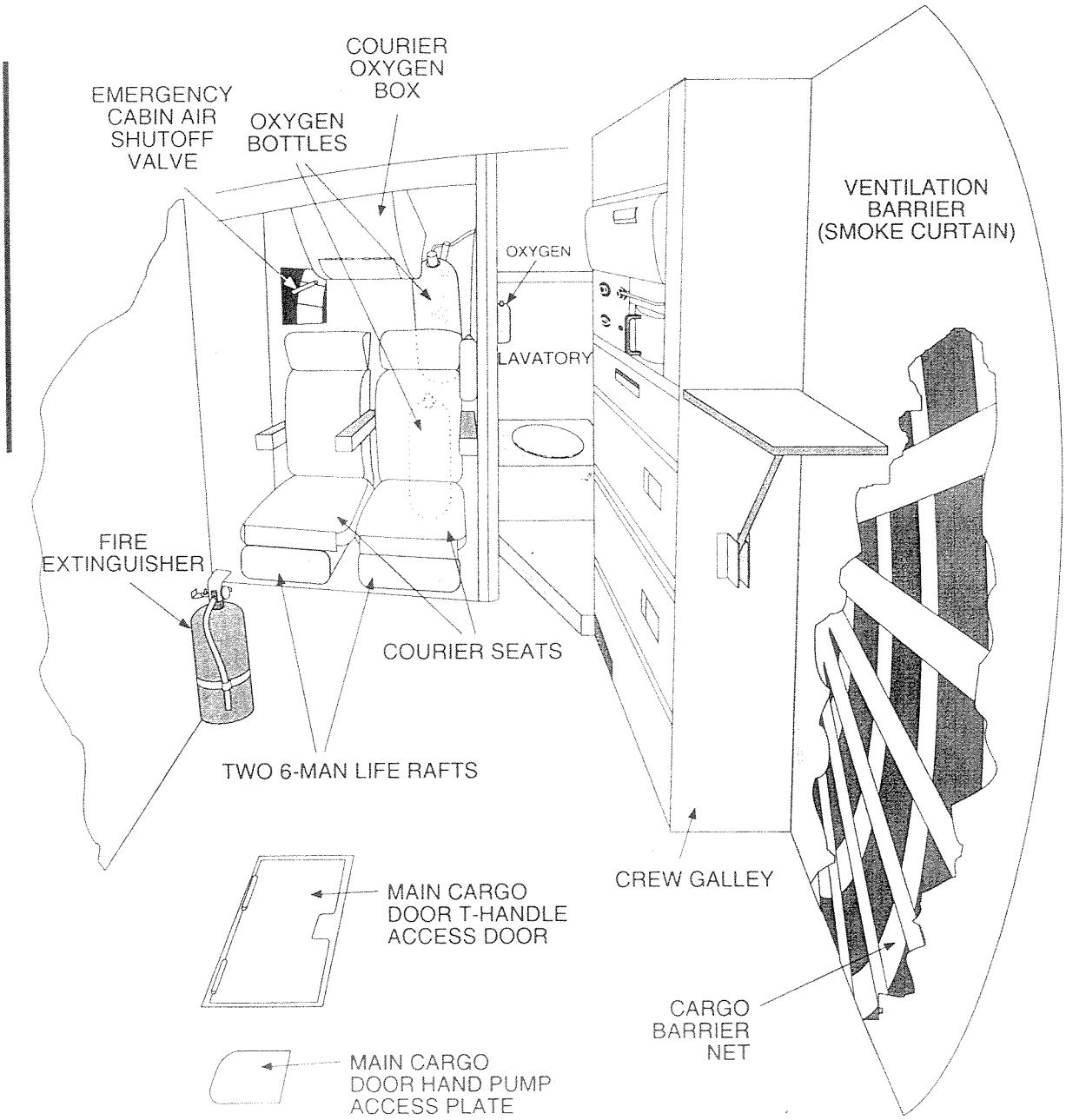
to Operations Group Chairman's Factual Report

DCA06MA022

SECOND OFFICER'S CONTROL PANEL (UPPER SECTION)



FORWARD AREA INSTALLATION



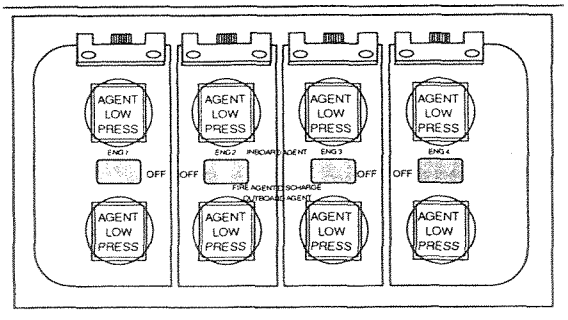
The fire agent bottles incorporate a thermal pressure release fitting that is designed to burst if the container pressure should rise to the range of 1,400 psi. The agent discharges through the fitting into the wing leading edge if the seal bursts.

To discharge a bottle into an engine nacelle, an explosive cartridge (squib) is fired into a frangible disc on the bottle by moving the fire agent discharge switch for the appropriate engine.

Once the disc has been ruptured, the agent is routed to the engine nacelle through deployment lines.

FIRE AGENT DISCHARGE CONTROL SWITCHES

Four fire agent discharge switches are located on the fire extinguishing panel, aft of the fire shutoff handles, behind separate, plastic, transparent guard doors. The switches are lever locked, spring loaded to the center OFF position, and placarded: ENG 1, ENG 2, ENG 3, and ENG 4.



When a fire shutoff handle is placed to the SELECT AGENT position, the corresponding guard door opens providing access to the agent discharge switch. The switch can then be moved to the momentary INBOARD AGENT, or OUTBOARD AGENT position, discharging the fire bottle agent into the engine. The agent deployment lines terminate in the nacelle at four outlets which disperse the agent, flooding the accessory section and space between the engine and nacelle.

NOTE: Electrical power to discharge a squib is available from the Battery Bus, (28VDC).

When the bottle pressure decreases below the preset level of the low pressure switch, the amber Agent Low Pressure lights for that bottle will illuminate. If necessary, the second bottle can be fired into the same engine, or the other engine on that wing.

AGENT LOW PRESSURE LIGHTS

Located on the fire extinguishing panel are eight, amber, agent low pressure warning lights, two for each fire agent bottle. The lights will illuminate when the corresponding fire agent bottle pressure drops below approximately 250 psi.

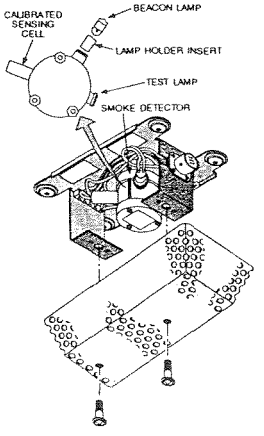
When the light cap is pressed, a continuity check is made through the corresponding fire bottle discharge cartridge (squib). If the circuit continuity is normal, the Agent Low Pressure light will illuminate when pressed, and extinguish when released.

CABIN AIR SHUTOFF VALVE

Located behind the #1 courier seat. It is a shear-wired lever. When operated, it shuts off airflow to the cabin (aft of the cockpit entry door).

CARGO SMOKE DETECTOR SYSTEM

Each aircraft is equipped with seven, or fourteen smoke detectors located through out the ceiling of the upper cargo deck. Each detector consists of a beacon lamp, a test lamp, and a sensor.



The smoke detectors are turned on by moving the smoke detector selector switch out of the OFF position. Each smoke detector's beacon lamp is then illuminated and the detector is able to detect smoke. When smoke is detected, the amber Cargo Smoke light on the Second Officer's upper panel is illuminated.

In the event that smoke is detected in the cargo area, the detector that is sensing the smoke can be determined by rotating the selector switch through the selectable positions. The cargo smoke light will remain illuminated only for the selected switch position(s) for detectors containing smoke.

CARGO SMOKE LIGHT

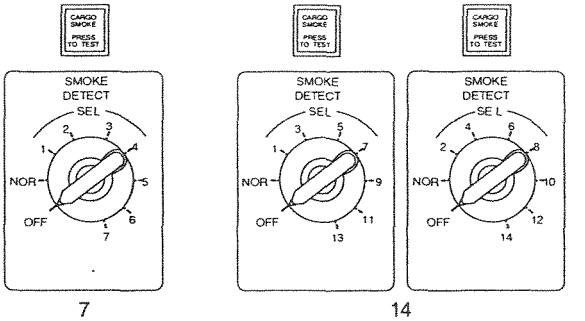
Installed on the Second Officer's upper panel is one or two cargo smoke lights with a corresponding selector switch.

The cargo smoke light will illuminate when ever the selector switch is out of the OFF position and a smoke detector contains smoke.

SMOKE DETECTOR SELECTOR SWITCH

The smoke detector selector switch, located on the Second Officer's upper panel, provides a means of turning on the smoke detectors and testing the detectors along with system wiring.

The smoke detector selector switch has positions labeled: OFF, NOR, and 1 thru 7, or 1 thru 13 and 2 thru 14.



7 DETECTORS

14 DETECTORS

NOTE: For a current listing of the number of smoke detectors installed on a specific aircraft, see the UPS DC-8 Minimum Equipment List (MEL).

With the switch in the OFF position, the smoke detectors are off and will not detect smoke. In addition, the cargo smoke light will not illuminate when pressed-to-test.

With the switch in the normal position all detectors are on, and will cause the corresponding cargo smoke light to illuminate when smoke is detected. By moving the switch to a numbered position, each smoke detector can be tested along with system wiring and the cargo smoke light. Press and hold the cargo smoke light and the light will illuminate. Release the light and it will extinguish after a short period of time indicating a functioning smoke detector.

When all detector testing is completed, the selector switch is returned to the NOR position.

LOWER CARGO COMPARTMENT SMOKE DETECTION SYSTEM

GENERAL

The smoke detection system installation consists of a Central Control Unit (CCU) Detectors, Control Display Unit (CDU), and a Lower Cargo Fire Warning light. It provides detection of smoke or fire in the lower cargo compartments through a field of 19 detectors installed in the ceiling of all four compartments.

SYSTEM OPERATION AND LIMITATIONS

The CCU, located in the aft accessory compartment is a two-channel, two power source (for redundancy) control unit that receives inputs from the detectors via an RF signal. If the CCU detects an error, or if there is an indication of fire, it will transmit the information to the CDU to be displayed. Connected to the CCU is a memory module that discriminates between each individual detector signal. If the CCU is replaced, the memory module along with its programming remain in the aircraft.

The 19 detectors are distributed through the four cargo compartments with four to five in each. They are self-contained with individual batteries powering each unit. Each unit has a unique frequency used to broadcast its status to the CCU. Similar to the module on the CCU, each detector has an identification plug that contains the individual frequency for that location. In the event a detector malfunctions, it can be replaced without reprogramming the system. Each unit has both a photo reflective smoke sensor (similar to the upper deck units) as well as a separate heat sensor. Whenever a detector senses either smoke or heat, it broadcasts to the CCU. The CCU however, will not send a fire indication to the CDU until it receives at least two sensings from the detectors in that compartment. This could either be one detector sensing both smoke and heat, or two detectors having a single sensing. Whenever a detector malfunctions or fails to broadcast, the CCU will send a failure message to the CDU.

A single compartment can have a maximum of one detector inoperative and still contain cargo.

The CDU, located on the shelf between the circuit breaker panel and Second Officer's panel, consists of a SYS OK and MX LIGHT, a MX TEST and LAMP TEST button, a maintenance LED display, MX SETUP button, and a FIRE indicator light. The SYS OK light will be illuminated whenever the system is powered and

working normally. If the SYS OK light is not illuminated, the system is malfunctioning and an associated MX light should illuminate. The MX light indicates a malfunction in the system. If the MX light illuminates with the SYS OK light illuminated, the malfunction is deferrable without repair (i.e. one detector is malfunctioning). If the MX light illuminates and the SYS OK light extinguishes, the system must be repaired or a restriction will apply. In the event of a MX light, the MX TEST button can be pushed (hold for approximately one second) and any malfunction sensed will be indicated on the maintenance display. If multiple malfunctions are detected, the maintenance display will scroll through each malfunction.

The MX SETUP button is used to program the system and should not be pressed by aircrew. The FIRE indicator light will illuminate whenever a fire is sensed and will identify which compartment is affected on the maintenance display. Whenever a fire is indicated, the Lower Cargo Fire light on the Second Officer's panel and the Master Warning light on the First Officer's glareshield will illuminate.

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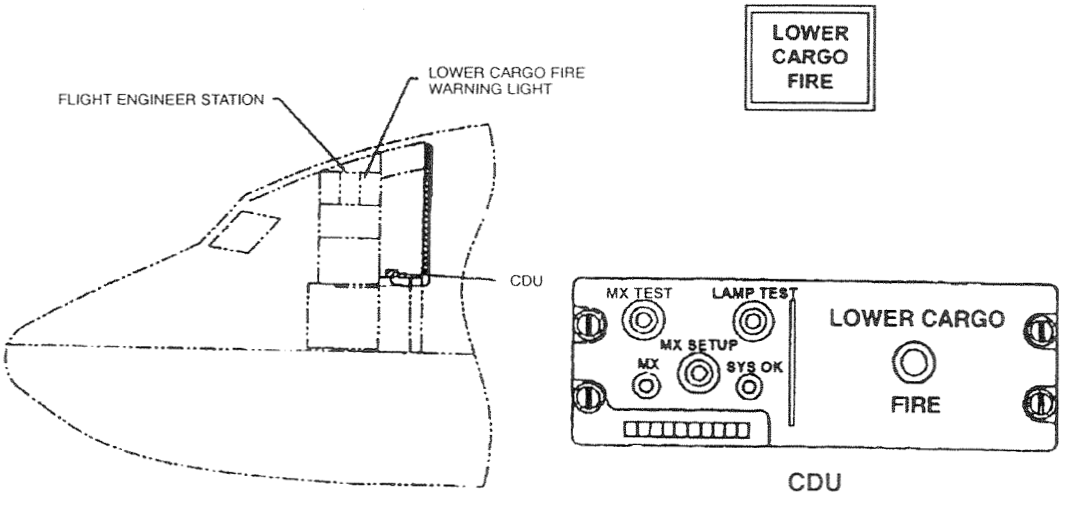
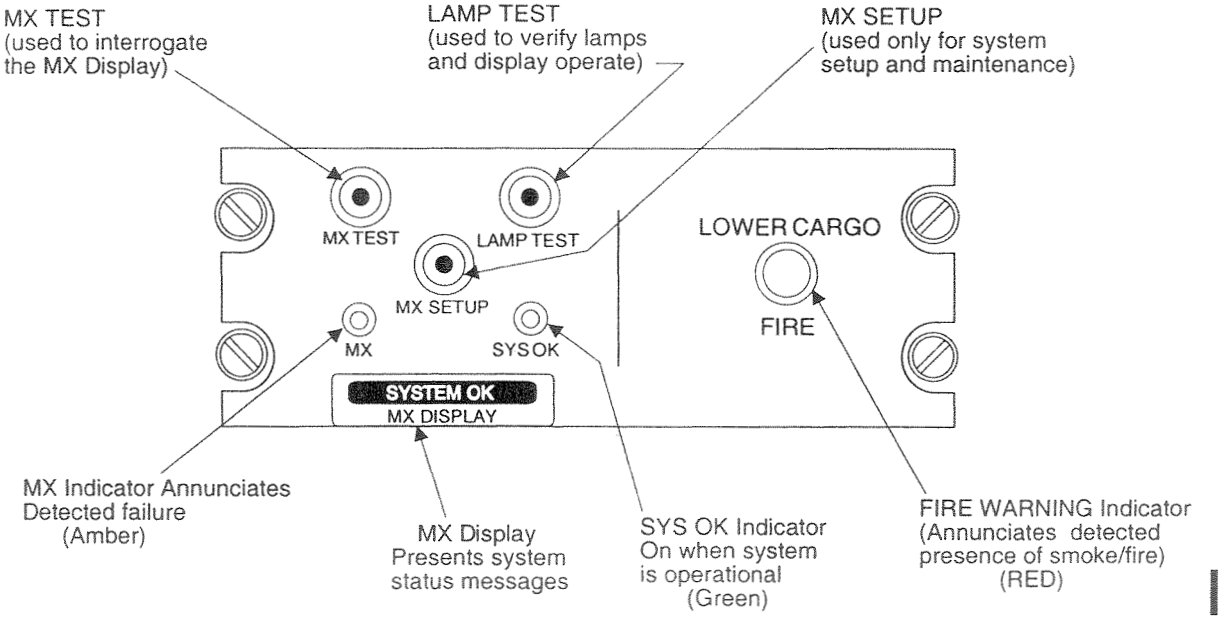
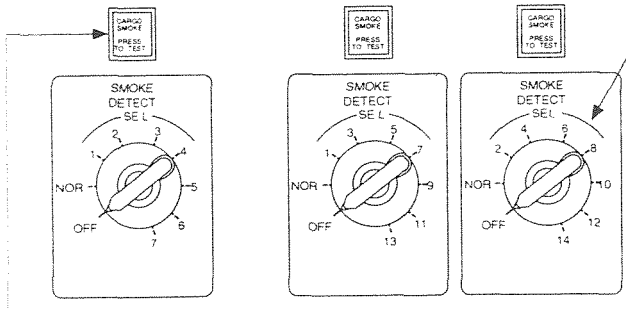
LOWER CARGO SMOKE DETECTION SYSTEM





SMOKE DETECTION SYSTEM



CARGO SMOKE LIGHTS

ILLUMINATED WHEN:

The air passing through a smoke detector has reached a predetermined smoke density, provided the smoke detector switch is in the NOR position.

The associated smoke detector switch is placed in any numbered position and the cargo smoke light is pressed. This indicates a properly functioning smoke detector.

COLOR: Amber

PWR: 7 detector system Left Emergency DC
14 detector system
1-13 (odd) Right Emergency DC
2-14 (even) Left Emergency DC

SMOKE DETECTOR SWITCH

OFF: The cargo smoke detectors are disarmed, the cargo light is deactivated, and cargo smoke is undetectable.

NOR: The smoke detector units are armed for normal operation.

NUMBERED POSITIONS: With the smoke detector switch in a numbered position, and the associated cargo smoke light pressed, illumination of the cargo smoke light indicates a properly functioning smoke detector.

If the cargo smoke light illuminates due to smoke in the upper cargo compartment, the location of the affected smoke detector can be determined by rotating the detector switch through the numbered positions. The cargo light remains illuminated only for the affected smoke detector(s).

PWR: 7 detector system Left Emergency DC
14 detector system
1-13 (odd) Right Emergency DC
2-14 (even) Left Emergency DC

LOCATION: Second Officer's Control Panel (Upper Section)